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ABSTRACT

The effect on achievement of the timing of the transition from elementary to intermediate school was investigated. Focus was on determining whether it matters if children transfer to an intermediate school at grade 6 or at grade 7. The Otis-Lennon School Ability Test was administered to grade 5 students in spring of 1981. The sixth and seventh-grade achievement scores on the Stanford Achievement Test of 1,140 of these students who entered middle school in the sixth grade were compared to those of 1,158 students who entered junior high school in the seventh grade. Overall, sixth-grade students in self-contained classrooms with teachers instructing in all subjects performed as well or better than did students in middle schools with separate teachers for mathematics, science, social studies, and language arts. Results suggest that student achievement is affected by the transition into middle school, whether it occurs at grade 6 or grade 7. The advantage that the elementary school sixth-grader held over the middle school sixth-grader was lost by the end of grade 7 when both groups were attending intermediate schools. Seven tables contain study data. (SLD)

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RELATIONSHIP OF STUDENT ACHIEVEMENT & GRADE OF ENTRY INTO THE INTERMEDIATE SCHOOL

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Palm Beach County School System

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Relationship of Student Achievement and Grade of Entry into the Intermediate School

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ABSTRACT. An investigation of the effect on achievement of the timing of the transition from elementary to intermediate school was undertaken. The sixth and seventh grade achievement scores of 1140 students who entered middle school in the sixth grade were compared to those of 1158 students who entered junior high school in the seventh grade. Results indicate that achievement is affected by the transition into middle school whether it occurs at grade six or seven.

By the mid 1970's the sixth through eighth grade configuration was the fastest growing format of school organization in the country (Toepfer, 1982). This grade configuration, known as a middle school, was developed as an alternative to the junior high school which contains grades seven through nine (Kindred, 1981). The middle school generally is defined as a school between elementary school and high school involving unique curricular and instructional approaches that are neither elementary nor secondary in nature. The ideal program is described as being flexible and interdisciplinary, offering a broad spectrum of student services, and being designed to meet the individual developmental needs of children from 10 to 14 years old. However, most studies have found that the typical middle school tends to have more similarities to than differences from the conventional junior high school (ERS, 1983).

Although the middle school, in most cases, is simply a reorganized grade structure, the restructuring of

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the grade configuration at the intermediate level continues. In Florida, for example, the number of middle schools exceeded the number of junior high schools by the late 70's (George, 1977), and the 1984 Legislature appointed a Task Force which recommended that all Florida school districts be reorganized into K-5, 6-8, and 9-12 grade configurations.

Many educators agree that grade organization may exert only a limited influence on a student's education. In their advice to administrators planning to develop a middle school, Curtis and Bidwell (1977) do not propose the grade levels that should be included, citing that there is no major argument which can be offered for optimal grade structure. A major dissenting voice comes from Lipsitz (1980), who proposes that grade level does matter, but who also believes that existing data probably will not support her argument.

Although the consensus of opinion among writers in the field of middle schools is that grade organization is considerably less important than program, they frequently advocate placing the sixth grade and sometimes the fifth grade in the middle school. For example, McCarthy (1981) argues that 10 and 11 year old students are too intellectually mature to be grouped with elementary children and need teachers who have more expertise in specific academic disciplines than most elementary teachers. Kindred, et al. (1981) take the same position, suggesting that boys and girls are maturing physically sooner than did their parents due to better nutrition and improved medical care. They also believe that youth between the ages of 10 and 15 years possess much more knowledge of the world than their parents at a corresponding age. Toepfer (1982) reports that sixth graders have physical growth and capabilities found in seventh graders of the 1950's.

Research conducted on grade organization does not, however, offer support for moving one or more upper elementary grades to the intermediate school. Examination of the two primary sources of middle school research, Blyth and Karnes (1981) and Educational Research Service (1983), provides little basis for supporting one organizational pattern over another. It appears that there are no data which

justify categorical statements as to the efficacy of any one pattern of school organization (Howard and Stoumbis, 1970; Martin, 1974; Trump, 1974; Alexander and George, 1981; Kindred, 1981). Additionally, existing research demonstrates various conceptual and methodological problems (ERS, 1983).

Yet a school system must make practical decisions about grade level organization. Alexander and George (1981) and Toepfer and Marani (1980) urge that rigorous studies be conducted to gather data which compare the middle school with other patterns of education for the middle grades.

The purpose of this study was to compare grade configurations in terms of student achievement. Specifically, the question of interest was whether it matters if children transfer to an intermediate school at grade six or grade seven. Simmons, et al. (1973) found that the period between a pupil's 12th and 13th birthday is especially critical since problems related to disturbance in self-image are exacerbated by a break in schooling between sixth and seventh grades. Also, Alexander (1969) suggests that the first year in a new environment involves a great adjustment to that environment, whereas the second year is usually more comfortable. Given the potential difficulties of moving at the beginning of grade seven, the question becomes one of determining whether this has an effect on achievement. Certainly test publishers and users have been aware of the infamous "seventh grade dip" for many years.

An investigation of the effect on achievement of the timing of the transition from elementary school to intermediate school was undertaken by comparing the achievement of students who entered middle school at grade six, identified in this study as Group 1, with those who remained in elementary school for grade six and then entered junior high school at grade seven, identified as Group 2.

Method

Setting. The public school system of Palm Beach County, Florida, geographically is one of the larger districts in the nation, comprising over 2,000 square

miles with an enrollment of more than 72,000 students in grades K-12. The students reflect a cross-section of socio-economic backgrounds, ranging from the resort environment to that of the migrant farm worker. The student population is composed of 63 percent white, 28 percent black, 8 percent Hispanic and 1 percent Haitian. Thirty-eight percent of the students receive free or reduced-price lunches.

Grade levels within district schools reflect organizational patterns of K-4, K-5, K-6, K-8, K-6, 6, 6-8, 7-8, 8-12, and 9-12. As with other school districts experiencing rapid population growth, grade level configurations in part have been dictated by the space available within existing school buildings. However, for new schools constructed, the configuration is K-5, 6-8, and 9-12.

The instructional program for all Palm Beach County students is a somewhat structured approach known as the Palm Beach County Unified Curriculum. This program is centered around sets of common instructional objectives and skills, learning activities, and sets of instructional materials for all schools. An instructional management system for mathematics is operational for grades K-6. A similar system, developed in communication skills, is used in K-6 elementary schools. In most cases, the sixth grade in an elementary school is self-contained, while the sixth grade in a middle school utilizes different subject area teachers in English, mathematics, science, and social studies.

Instrumentation. The two standardized test instruments used in this study were the Otis-Lennon School Ability Test (O-LSAT) and the Stanford Achievement Test, 7th edition (SAT/7), both published by The Psychological Corporation. The O-LSAT provides an indicator of student ability to perform satisfactorily in the usual school setting. Scores are reported as the School Ability Index (SAI), a derived score with a mean of 100 and a standard deviation of 16. The O-LSAT, Elementary Form, was administered to grade 5 students in spring, 1981, as part of the regular program for all elementary school students in grades two through five.

The measure of student achievement in the study was the SAT/7, Intermediate II level, Form F, for grade six students and SAT/7, Advanced level, Form F, for grade seven students. The Stanford battery includes measures of reading comprehension, language, listening comprehension, vocabulary, math application, math concepts, math computation, social science, and science. Scores are reported as scaled scores. These achievement tests were administered during spring, 1982, and spring, 1983, as part of the district's annual achievement testing program for students in grades two through nine.

Sampling procedure. Several procedures were used to establish two comparable groups of students, one entering a middle school (grades six through eight) in 1981 identified as Group 1, the other entering junior high school (grades seven and eight) in 1982 identified as Group 2. The first step was to track students who attended the County schools in grade five (1981) and continued in the school system in grade six (1982) and grade seven (1983) in either a middle school or a junior high school. Additionally, each student must have had O-LSAT scores in 1981 as well as SAT/7 scores in 1982 and 1983. This was accomplished by matching student ID numbers and merging achievement and ability test data files for those three years. Of the 5707 fifth graders who had test scores from the 1981 systemwide administration of the O-LSAT, 3779 students also had test scores for the Stanford Achievement Test (SAT/7) administered in 1982 and 1983. From this potential sample population of 3779 students, a second reduction occurred. Middle or junior high schools which did not have either a grade six through eight or grade seven and eight organizational pattern were eliminated. This reduction involved 700 students, leaving 3079 in the sample.

From the remaining sample, the two groups were matched on the Otis-Lennon School Ability Index (SAI). This matching process involved comparing group mean SAIs and examining the distribution of scores within each stanine for each group. Scores from Group 2 were dropped randomly from each stanine until the distribution closely approximated that of Group 1. Table 1 contains the mean scores and standard deviations in

each stanine for each group. As shown, mean ability scores and standard deviations for the two groups were alike. For example, the means and standard deviations in stanine three for each group are identical--84 and 2.2, respectively. The method of establishing equivalency ensured comparable groups with which to conduct the study. The final sample consisted of 1140 students in five middle schools (Group 1) and 1158 students in six junior high schools (Group 2). The two groups of students were further divided into ability level subgroups on the basis of SAI scores: high ability (above 111), average (88-111), and low ability (below 88).

TABLE 1

Otis-Lennon School Ability Index Means and Standard Deviations, by Stanine within Student Group

	Early Transition Middle School Group 1			Delayed Transition Junior High School Group 2		
Stanine	N	Mean	SD	N	Mean	SD
1	10	64.7	4.1	10	65.3	5.0
2	40	76.4	2.5	45	76.2	2.5
3	92	84.0	2.2	90	84.0	2.2
4	160	91.9	2.1	166	91.3	2.2
5	229	100.1	2.3	234	99.7	2.3
6	249	107.5	2.2	254	107.5	2.2
7	186	114.8	2.3	186	114.8	2.1
8	116	122.9	2.3	119	123.0	2.5
9	58	133.2	3.8	54	133.1	4.7
Total	1140	104.5	14.3	1158	104.2	14.3

Data analysis procedures. In order to examine the achievement of Group 1 and Group 2, scaled score means and standard deviations for the nine SAT/7 subtests were calculated. T-tests for independent samples were

used to determine whether the mean differences between the groups were significant. Comparisons were made between the two groups at grade six and again at grade seven. Also, score differences by ability levels were examined at these grades. Finally, achievement gain score comparisons were made between Group 1 and Group 2, and also between their respective ability levels, across the various SAT/7 subtests.

The data were analyzed on the school district's IBM-370/138 computer system, utilizing the SPSS FREQUENCY, BREAKDOWN, or CROSSTABS programs (Nie, et al., 1975).

Results

Is there a difference between middle and junior high school students' achievement at grade six? Table 2 contains the means and standard deviations of various SAT/7 subtests for Group 1 (middle school) and Group 2 (junior high school) students. The results of the analysis show that significant differences favoring Group 2 (delayed transition) occurred in four subtests: listening comprehension and the three math subtests.

Is there a difference between middle and junior high school students' achievement at grade seven? Table 3 contains the means and standard deviations of the various SAT/7 subtests for Group 1 (middle school) and Group 2 (junior high school) students. The results show significant differences between the groups in two subtests: middle school students scored significantly higher than junior high students in science, and junior high students performed better than the middle school group in math computation.

Is there a difference between middle and junior high school students in the achievement gains from grade six to grade seven? Table 4 contains the scaled score mean gains and standard deviations of the various SAT/7 subtests for middle and junior high school groups from the end of grade six to the end of grade seven. Highly significant gains favoring middle school students were identified in eight subtests: reading comprehension, listening comprehension, language, the three math subtests, social science, and

TABLE 2
SAT/7 Mean Scaled Scores and Standard Deviations for Grade Six Student Groups: Intermediate 1, Form F, Spring, 1982

	Early Transition Middle School Group 1			Delayed Transition Junior High School Group 2			
Content Area	N	Mean	SD	N	Mean	SD	t
Reading Comp.	1115	670.0	43.0	1155	672.5	42.0	1.40
Vocabulary	1107	669.0	43.6	1145	665.8	42.4	1.77
Listen Comp.	1106	661.3	35.0	1148	665.1	36.2	2.52**
Language	1100	663.3	35.8	1152	666.2	36.0	1.91
Number Con.	1114	670.9	46.0	1153	680.5	45.7	4.97***
Math Comp.	1110	686.6	50.6	1154	701.0	50.6	6.54***
Math App.	1111	664.2	42.4	1153	673.7	43.7	5.20***
Social Science	1100	655.0	41.9	1150	656.5	38.8	0.88
Science	1108	658.6	36.0	1146	658.6	32.8	0.00

* $p < .05$ ** $p < .01$ *** $p < .001$

TABLE 3
SAT/7 Mean Scaled Scores and Standard Deviations for Grade Seven Student Groups: Advanced, Form F, Spring, 1983

	Early Transition Middle School Group 1			Delayed Transition Junior High School Group 2			
Content Area	N	Mean	SD	N	Mean	SD	t
Reading Comp.	1128	675.2	40.6	1150	673.6	41.3	1.27
Vocabulary	1119	677.3	34.8	1146	675.0	36.0	1.53
Listen Comp.	1108	670.6	34.0	1135	669.4	35.2	0.83
Language	1118	671.8	35.2	1151	672.4	34.0	0.41
Number Con.	1127	692.0	41.2	1151	695.1	42.5	1.77
Math Comp.	1127	690.8	42.2	1148	696.8	44.5	3.33***
Math App.	1126	676.5	40.2	1149	678.9	40.1	1.45
Social Science	1107	667.0	36.2	1145	665.8	36.6	0.80
Science	1104	663.3	32.5	1137	659.8	31.2	2.59**

** $p < .01$ *** $p < .001$

TABLE 4

SAT/7 Mean Gain Scores and Standard Deviations of Student Groups for 1982 and 1983

Content Area	Middle School Mean Group 1	Junior High School Mean Group 2	SD Diff.	t
Reading Comp.	5.45	1.11	1.23	3.52***
Vocabulary	8.03	9.09	1.19	0.89
Listening Comp.	9.01	4.37	1.20	3.87***
Language	8.64	6.30	1.02	2.29**
Number Con.	21.45	14.75	1.46	4.59***
Math Comp.	4.53	-3.97	1.50	5.66***
Math App.	12.50	5.21	1.14	6.39***
Social Science	11.76	9.33	1.04	2.24**
Science	4.61	1.12	0.96	3.36***

** $p < .01$
*** $p < .001$

science. In math computation, junior high students showed a loss of 3.97 scaled score points.

Is there a difference in achievement within ability levels between middle and junior high school students at grade six? Table 5 contains the SAT/7 scaled score means and standard deviations for each SAI ability subgroup. Highly significant differences for all three ability levels of junior high students were found in the three math subtests. Also, high and average ability students in the junior high group performed significantly better than the corresponding students in middle school in listening comprehension. In language, high and low ability junior high students scored significantly higher than similar middle school students. Vocabulary was the only subtest on which any ability level of middle school students, in this case average ability level students, performed better than the corresponding junior high students.

Is there a difference in achievement within ability levels between middle and junior high school students at grade seven? Table 6 contains the SAT/7 scaled score means and standard deviations for the SAI ability subgroups. Significant differences were found favoring the junior high group in math applications for low ability students, math concepts for high ability students, and math computation for all three ability levels. For the middle school group, average ability students scored significantly higher than those in junior high in vocabulary, listening comprehension, and science.

Is there a difference between middle and junior high school students in achievement gains from the end of grade six to the end of grade seven within ability levels? Table 7 contains the SAT/7 means and standard deviations for each ability level within the middle and junior high school groups. Middle school students within selected ability levels had higher gains than those in junior high school on the majority of subtests. Significant gains were found for average ability students in reading comprehension, listening comprehension, the three math subtests, science, and social science. For high ability students, significant gains occurred in vocabulary and math applications, and for low ability students in math computation.

TABLE 5
SAT/7 Mean Scaled Scores and Standard Deviations for Grade Six Student Groups by Ability Level: Intermediate I, Form F, Spring, 1982

	Early Transition Middle School Group 1			Delayed Transition Junior High School Group 2			
Content Area	N	Mean	SD	N	Mean	SD	t
Reading Comp.							
High	357	697.2	41.8	355	702.2	39.5	1.60
Average	623	653.8	34.7	652	655.9	36.8	1.00
Low	137	615.0	27.9	146	620.7	29.4	1.67
Vocabulary							
High	351	703.1	37.3	354	699.8	35.9	1.20
Average	616	659.7	34.5	649	655.8	34.8	1.97*
Low	140	623.1	31.1	143	627.4	30.6	1.19
Listening Comp.							
High	350	686.0	30.4	354	690.9	29.0	2.19*
Average	617	654.7	28.9	639	658.8	30.9	2.41**
Low	139	628.8	30.1	144	629.5	31.6	0.19

TABLE 5 (continued)
SAT/7 Mean Scaled Scores and Standard Deviations for Grade Six Student Groups by Ability Level: Intermediate I, Form F, Spring, 1982

	Early Transition Middle School Group 1			Delayed Transition Junior High School Group 2			
Content Area	N	Mean	SD	N	Mean	SD	t
Language							
High	351	692.4	33.1	357	698.3	30.6	2.47**
Average	613	656.0	25.1	648	657.2	25.9	1.18
Low	136	621.3	22.3	146	627.0	24.2	2.07*
Math Concepts							
High	355	711.7	40.3	357	721.5	39.9	3.61***
Average	621	658.3	32.5	650	668.8	32.2	5.21***
Low	138	621.7	27.4	144	631.9	29.8	2.97**
Math Comp.							
High	355	722.1	44.1	356	737.0	42.1	4.66***
Average	618	677.0	43.0	645	691.6	43.7	6.01***
Low	137	638.1	36.7	144	653.9	40.2	3.49***

TABLE 5 (continued)
SAT/7 Mean Scaled Scores and Standard Deviations for Grade Six Student Groups by Ability Level: Intermediate 1, Form F, Spring, 1982

	Early Transition Middle School Group 1			Delayed Transition Junior High School Group 2			
Content Area	N	Mean	SD	N	Mean	SD	t
Math App.							
High	355	701.0	34.5	359	713.2	35.2	4.62***
Average	620	654.5	30.6	646	663.4	30.7	5.32***
Low	136	612.1	25.7	144	622.4	31.1	3.02**
Soc. Science							
High	349	688.1	33.4	356	689.1	29.9	0.42
Average	616	646.2	34.6	644	648.3	30.4	1.16
Low	139	609.9	27.0	145	612.7	28.2	0.87
Science							
High	353	687.5	31.8	356	685.1	26.1	1.10
Average	616	650.6	28.6	636	651.8	26.5	0.77
Low	139	620.5	21.4	145	623.7	23.7	1.20

* $p < .05$ ** $p < .01$ *** $p < .001$

TABLE 6
SAT/7 Mean Scaled Scores and Standard Deviations for Grade Seven Student Groups by Ability Level: Advanced, Form F, Spring, 1983

	Early Transition Middle School Group 1			Delayed Transition Junior High School Group 2			
Content Area	N	Mean	SD	N	Mean	SD	t
Reading Comp.							
High	357	700.6	38.1	355	702.0	38.8	0.49
Average	623	660.4	31.2	652	657.3	31.7	1.76
Low	137	623.4	23.2	146	623.9	23.1	0.18
Vocabulary							
High	351	701.6	34.8	354	702.6	34.0	0.39
Average	616	671.3	26.7	649	667.1	28.5	2.80**
Low	140	641.5	22.6	143	642.5	24.5	0.47
Listening Comp.							
High	350	694.3	29.8	354	695.9	30.5	0.74
Average	617	665.1	28.1	639	661.9	28.9	2.60**
Low	139	634.9	26.0	144	637.0	27.8	0.65

TABLE 6 (continued)
SAT/7 Mean Scaled Scores and Standard Deviations for Grade Seven Student Groups by Ability Level: Advanced I, Form F, Spring, 1983

	Early Transition Middle School Group 1			Delayed Transition Junior High School Group 2			
Content Area	N	Mean	SD	N	Mean	SD	t
Language							
High	351	701.0	28.8	357	702.9	25.9	0.93
Average	613	664.9	26.5	648	664.3	26.3	0.09
Low	136	629.4	22.6	146	634.2	20.2	1.88
Math Concepts							
High	355	726.4	37.7	357	732.4	36.1	2.17*
Average	621	682.7	30.2	650	684.2	32.5	0.85
Low	138	648.0	24.8	144	651.6	23.2	1.26
Math Comp.							
High	355	725.2	41.3	356	735.2	41.3	3.24***
Average	618	680.7	30.3	645	685.3	32.5	2.59**
Low	137	648.4	24.7	144	654.6	28.0	1.97*

TABLE 6 (continued)
SAT/7 Mean Scaled Scores and Standard Deviations for Grade Seven Student Groups by Ability Level: Advanced, Form F, Spring, 1983

	Early Transition Middle School Group 1			Delayed Transition Junior High School Group 2			
Content Area	N	Mean	SD	N	Mean	SD	t
Math App.							
High	355	712.0	36.6	359	716.1	34.3	1.55
Average	620	666.5	27.5	646	667.4	28.3	0.57
Low	136	630.4	20.1	144	638.1	25.2	2.83**
Soc. Science							
High	349	696.3	31.2	356	696.6	28.6	0.00
Average	616	659.0	28.6	644	656.9	30.2	1.27
Low	139	628.4	20.8	145	629.7	22.8	0.50
Science							
High	353	688.1	26.2	356	685.7	24.4	1.52
Average	616	657.4	26.6	636	652.8	24.9	3.17**
Low	139	626.6	20.4	145	626.7	22.0	0.00

* $p < .05$ ** $p < .01$ *** $p < .001$

TABLE 7

SAT/7 Mean Gain Scores of Student Groups by Ability Level

	Early Transition Middle School	Delayed Transition Junior High School		
	Mean		SD	
Content Area	Group 1	Group 2	Diff.	t
Reading Comp.				
High	3.20	0.00	2.50	1.28
Average	6.40	1.50	1.50	3.27***
Low	7.61	3.72	3.20	1.21
Vocabulary				
High	2.72	-1.44	2.01	2.06*
Average	11.27	11.12	1.51	0.17
Low	18.56	15.02	3.29	1.07
Listening Comp.				
High	7.82	5.19	2.30	1.14
Average	10.09	3.20	1.50	4.51***
Low	7.12	7.14	3.54	0.00
Language				
High	8.47	4.57	1.99	1.65
Average	8.89	7.01	1.30	1.45
Low	7.96	7.56	2.70	0.17
Number Concepts				
High	14.97	11.13	2.37	1.40
Average	24.40	15.54	1.51	5.86***
Low	26.15	20.20	3.16	1.88
Math Comp.				
High	2.97	-1.67	2.88	1.61
Average	4.19	-6.58	1.96	5.49***
Low	10.21	2.00	3.80	2.16*
Math App.				
High	10.61	2.90	2.26	3.45***
Average	12.34	4.01	1.39	5.49***
Low	18.22	16.49	3.18	0.54

TABLE 7 (continued)

SAT/7 Mean Gain Scores of Student Groups
by Ability Level

Content Area	Early Transition Middle School Mean Group 1	Delayed Transition Junior High School Mean Group 2	SD Diff.	t
Social Science				
High	7.80	7.54	1.84	0.15
Average	12.79	8.66	1.40	2.95**
Low	17.29	16.76	2.83	0.18
Science				
High	0.78	0.52	1.76	0.30
Average	6.67	0.95	1.30	4.41***
Low	5.14	3.35	2.24	0.80

* $p < .05$
** $p < .01$
*** $p < .001$

Discussion

The present study examined the relationship between the grade of entry into the intermediate school and student academic achievement. Test scores of students entering at grade six and at grade seven were examined for significant differences. Middle school professionals have suggested that the 10 to 11 year old student's level of intellectual functioning is such that teachers with expertise in specific disciplines can best meet their needs. The results of this study do not support this notion. Sixth grade students in self-contained classrooms with teachers who instruct in all subjects do as well as or better than students in middle schools who have separate mathematics, science, social studies, and language arts teachers.

There are differences between the elementary and middle school grade programs in the areas of reading, language, social science, and science. In the sixth grade of an elementary school, an instructional block of approximately two hours each day is devoted to communication skills (reading, spelling, and English), whereas in the middle school a daily class period of approximately 50 minutes is devoted to English. In the elementary school sixth grade, a minimum of two and one half hours per week is devoted each to science and social science, whereas the middle school has daily periods of approximately 50 minutes for each subject. Given these differences in instructional emphasis, one might expect the reading scores of elementary sixth grade students to be higher and the language, social science, and science scores of middle school students to be higher. Yet, there were no significant differences observed in reading, language, social science, and science scores between the groups.

In mathematics a curious pattern exists. Students who remain in the elementary school for grade six perform much higher on the three math subtests than students who attend a middle school for grade six. This is true for low, average, and high ability students. However, at the end of grade seven there is no significant difference in performance on math concepts and math applications tests. There continues to be a

significant difference favoring the junior high students (Group 2) in math computation, particularly for the high ability students. What should be noted, however, is that between grades six and seven, average and high ability students in Group 2 actually lost scaled score points in math computation.

It would appear that student achievement is affected by the transition to the intermediate school, whether it occurs at grade six or grade seven. Students entering intermediate school in grade six do not perform as well as students remaining in elementary school for grade six. However, in grade seven the middle school students, at that time in their second year of intermediate school, perform as well as junior high school students who enter the intermediate school at grade seven. The advantage that the elementary school sixth grader holds over the middle school sixth grader is lost by the end of grade seven, when both groups are attending the intermediate school. Only in math computation does the junior high student (Group 2) perform significantly better than the middle school student (Group 1), and in science the middle school student performs significantly better than the junior high student. The highly significant Group 1 gains from grade six to grade seven were accounted for primarily by the average ability students.

The findings of this study do not provide evidence that can used to support recommendations regarding an appropriate grade configuration for the intermediate school. A follow-up study of the performance of students in Group 1 and Group 2 in grade eight may yield different results. If students who enter the intermediate school at grade six continue to gain more than students who remain in the elementary school for grade six, it might be recommended that the six through eight grade configuration be implemented for all students. If, however, there is no significant difference in achievement between groups at the end of grade eight, it could be assumed that the adjustment to the intermediate school was made in grade six for the middle school student and in grade seven for the junior high student, and that by the end of grade eight it is not important at which grade the student entered the intermediate school relative to achievement.

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